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INFORMATION FOR ACCOUNTABILITY:
TRANSPARENCY AND CITIZEN ENGAGEMENT FOR IMPROVED SERVICE DELIVERY IN EDUCATION SYSTEMS

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EXECUTIVE SUMMARY

There is a wide consensus among policymakers and practitioners that while access to education has improved significantly for many children in low- and middle-income countries, learning has not kept pace. A large amount of research that has attempted to pinpoint the reasons behind this quality deficit in education has revealed that providing extra resources such as textbooks, learning materials, and infrastructure is largely ineffective in improving learning outcomes at the system level without accompanying changes to the underlying structures of education service delivery and associated systems of accountability.

Information is a key building block of a wide range of strategies that attempts to tackle weaknesses in service delivery and accountability at the school level, even where political systems disappoint at the national level. The dissemination of more and better quality information is expected to empower parents and communities to make better decisions in terms of their children's schooling and to put pressure on school administrators and public officials for making changes that improve learning and learning environments. This theory of change underpins both social accountability and open data initiatives, which are designed to use information to enhance accountability and thereby influence education delivery.

This report seeks to extract insight into the nuanced relationship between information and accountability, drawing upon a vast literature on bottom-up efforts to improve service delivery, increase citizen engagement, and promote transparency, as well as case studies in Australia, Moldova, Pakistan, and the Philippines. In an effort to clarify processes and mechanisms behind information-based reforms in the education sector, this report also categorizes and evaluates recent impact evaluations according to the intensity of interventions and their target change agents—parents, teachers, school principals, and local officials. The idea here is not just to help clarify what works but why reforms work (or do not).

While a select number of initiatives have reduced corruption; improved managerial, parental, and teacher effort; and led to more efficient targeting of reforms

and resources at the school level, it is clear that these limited successes are context-specific and difficult to replicate. Certain enabling conditions are required to facilitate the meaningful engagement of citizens, or improved decisionmaking and targeting of reforms by policymakers.

Political actors must be motivated to release data and respond to demands for reform as well as have the capacity and capability to take action or change behavior. Conversely, citizens and communities must have the interest and capacity to access, understand, and act based on available information. In the absence of latent demand and ability, infomediaries—the media, civil society organizations (CSOs), research groups, and the like—must be available to collect, translate, and communicate information in actionable ways. Independent of their role as translators, infomediaries can also place pressure on governments and providers to open data and engage in the reform process. Technological considerations, such as the affordability, availability, accessibility, and appropriateness of information platforms, as well as the legislative and regulatory environment, must also be taken into account in assessing whether fertile ground exists for information-based initiatives to take hold and result in improvements in service delivery.

Even under the best of circumstances, however, information is not guaranteed to stimulate citizen action and improve systems of accountability. In designing information-based reforms, strategies must take three things into account: data quality and availability; digital and societal divides; and tension among stakeholders.

First, a simple but critical point is that *transparent data systems are only as strong as the source data.* Efforts must be made to institute structured and timely data systems to fill large data gaps and ensure that

data are available and trustworthy. Most important, though, data must be *usable*, meaning that they are in a format that allows for comparison, either in relation to set standards or among different contexts, and that they are sufficiently disaggregated and valuable, in that the information can be tied to a decisionmaking or accountability mechanism (for example, data on expenditures rather than budgets).

Second, *interventions must take into account and mitigate digital and societal divides that could result in adverse effects*—empowering the already empowered, teaching to the test, misrepresenting data, and burdening the marginalized who can ill afford to divert time away from generating their livelihood. Additionally, information-based initiatives are susceptible to triggering individual actions at the expense of collective action, which may undermine, rather than strengthen, education systems. For instance, if parents take action by moving their children into better-performing schools, this does not support improvements in struggling schools and may actually cause them additional harm. It cannot be assumed that citizen priorities are in line with interests of front-line providers, or even national policies.

Third, *the locations of transparency and accountability reforms must be aligned with points of decisionmaking and responsibility*. This means that reforms cannot be aimed at the school level without taking into account vertical integration with local and national bureaucratic institutions, where key decisions on funding allocations, teacher hiring, and curriculum are often made. Moreover, information-based reforms targeted directly to parents must ensure that functioning response and feedback systems are in place or that sufficient choice exists among schooling options.

Findings from this report support a number of key takeaways:

1. **Information is not enough.** This systematic review echoes existing literature in finding that information alone is rarely sufficient to activate collective action or impel response from service providers. Instead, information must be made actionable through certain processes, such as interventions that change the capabilities or incentives of front-line providers or that empower parents with direct pathways or tools to use information.

2. **What information is captured and how it is shared matters.** Information needs to be user-centered to empower its audience, meaning that information must be targeted in a way that users perceive it as both useful and actionable. This highlights the importance of selecting not only the appropriate indicators—*whether on inputs or outputs*—but also the most appropriate format—*whether the information reflects official standards or is placed in relation to similar contexts* (for example, schools in close proximity or with similar socio-economic environments). The correct choice depends on the targeted audience and assumed channels of change.

3. **The use of infomediaries is vital.** In cases where the ability of citizens to understand, process, and act on published information is constrained, intermediaries—for example, the media, CSOs, researchers, and information and communications technology (ICT) organizations—may strengthen capabilities by translating and communicating information so it is more actionable for end users. These "infomediaries" play an especially important role when the use of technology to disseminate information, such as on internet platforms, creates vast digital and data divides. Beyond making data actionable by end users, infomediaries also play a vital role in articulating demand for data, in working with governments to supply open data and engage in the reform process, and even in collecting and disseminating data on their own.

4. **Dissemination tools are as important as the source data.** New technologies for transparency and accountability initiatives are wide-ranging and generate a lot of excitement—examples include social media platforms, text messaging, cloud services, tablets, mobile apps, and web interfaces. However, this should not imply that older means of communication are no longer useful. Just as information must be targeted effectively to ensure uptake, so, too, must the vehicle of dissemination be carefully considered. A key first step in the design of information for accountability initiatives is testing the means of communication for its appropriateness for intended users.

5. **Pathways to change may be nonlinear.** Often, ICTs are assumed to be disruptive tools that radically alter existing accountability relationships and processes. However, recent research suggests that so-called home runs—interventions that unleash a dramatic increase in accountability—are rare. Evidence shows that successful open data and social accountability initiatives build on existing formal or informal accountability practices. These insights stress the importance of working "with the grain" of embedded accountability relationships and with a deep understanding of complex political dimensions.

6. **Location matters.** Transparency and accountability reforms must take into consideration the location(s) of decisionmaking and availability of resources, particularly in relation to local bureaucratic institutions, to reinforce efforts at the point

of delivery. As such, localized efforts must be integrated vertically, so that there is two-way communication between local actors and information and central resources and authority, rather than a strictly horizontal approach that prioritizes replication over integration.

A more positive, systemwide impact on education and learning (rather than localized effects) will likely require that demand-side interventions are complemented and reinforced by internal accountability mechanisms within the bureaucracy that rely on evidence-based policymaking and strong feedback loops. There is clearly room to build on lessons learned from social accountability interventions to improve their impact—by linking information to specific paths of action; thoughtfully targeting the appropriate type of data to the relevant actor and location of responsibility; empowering infomediaries; and working with the grain of existing accountability mechanisms. But the delivery of quality education for all depends just as much on the capacity and willingness of governments to assess reform options and trade-offs as they respond to increased citizen engagement.

INTRODUCTION

There is wide consensus among policymakers and practitioners that despite marked progress in increasing access to education for most children, learning levels of children in school remain low and inequalities in enrollment and attainment persist. The recently convened International Commission on Financing Global Education Opportunity found that only half of primary-school-aged children and little more than a quarter of secondary-school aged children in low- and middle-income countries are learning basic literacy and numeracy skills. This echoes findings from the latest Uwezo assessment, which reveals that nearly half (46 percent) of Kenyan children ages 7-13 are unable to read and understand a basic sentence—a finding that has remained largely unchanged for the past five years (Uwezo, 2015).

A significant amount of research has attempted to pinpoint the reasons behind the quality deficit in education. Several studies have found that increasing inputs and spending are not strongly correlated with results and, especially among developing countries, large differences in learning outcomes between countries are not easily explained by differences in socio-economic status (Woessmann, 2016; Pritchett, 2015). For instance, new research from the Research on Improving Systems of Education (RISE) initiative found that "students from equivalently poor households in Vietnam learn much more than their Peruvian counterparts" (Pritchett, 2015). It is clear that in many settings providing extra resources such as textbooks, learning materials, and infrastructure do not improve learning outcomes at the system level without accompanying changes to the underlying structural elements of education service delivery—pedagogy, teacher quality, learning environments, financing, and school management—all of which need to be underpinned by effective systems of accountability.

This focus on service delivery has spurred a number of interrelated reforms at the school level, often implemented simultaneously within education systems, including decentralization, school management committees, vouchers, teacher performance pay, school report cards, and transparency boards. The basic idea behind such reforms is that key problems in education delivery—corruption, inequity, inefficiency, and insufficient resources—can be tackled locally at the school level even if political systems disappoint at the national level.

Key building blocks of this wide range of reform strategies, and the focus of this report, are the parallel efforts of *introducing or strengthening measurements for assessing school quality and learning*, and *using this information to improve service delivery at the local level*. The dissemination of more and better quality information is expected to empower parents and communities to make better decisions in terms of their children's schooling and to put pressure on school administrators and public officials to account for making changes that improve learning and learning environments.

In recent years, such research has focused primarily on two related types of information-based initiatives: *social accountability*, which emphasizes the role of information in empowering citizen voice to hold actors accountable from the bottom up, and increasing government transparency, which is more recently embodied in the *open government* and *open data* movements.[1]

This report takes a sector-specific look at information-based initiatives that operate at the intersection of these two strands, focusing on efforts designed to use information to enhance accountability and thereby influence education delivery (see Figure 1).

Figure 1. The intersection of social accountability and open data
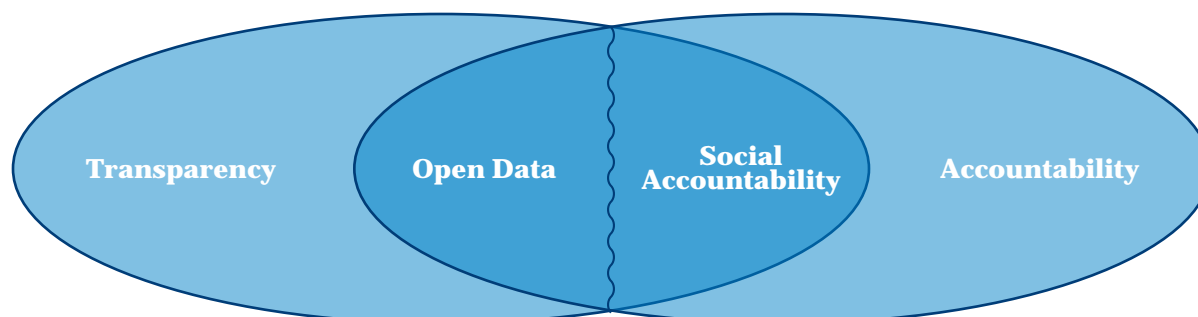
The primary aim of this report is to explore the underlying assumptions behind information-based initiatives, understand under what conditions information can lead to improved service delivery (and ultimately improved education quality and student learning), and to clarify the main mechanisms by which information generates increased engagement, accountability, or improved decisionmaking at the school level. This paper achieves these objectives by summarizing and building on recent large-scale conceptual frameworks and a growing evidence base of impact evaluations; extracting lessons from a number of case studies (see Box 1) to supplement the existing literature and provide nuanced insight into processes and mechanisms behind reform efforts; and compiling, synthesizing, and categorizing recent impact evaluations according to the intensity of interventions and their target change agents (parents, teachers, school principals, and local officials) rather than separately assessing each tactic

(for example, school report cards or open data platforms). This report aims to add value in three ways:

1. Reconciling the vast literature on what can broadly be understood as bottom-up efforts to improve service delivery, increase citizen engagement, and promote transparency, particularly *open data* and *social accountability*, which tend to be treated separately in the literature due to different intellectual foundations.

2. Providing a sector-specific evaluation, whereas most analyses take a high-level approach that spans different types of service providers, or are education-specific but address multiple types of interventions simultaneously.

3. Applying a particular focus on low- and middle-income countries, made possible by an influx of new research in the area.

Box 1. Case study initiatives

Scoala Mea

A social accountability project launched in **Moldova** by Expert-Grup, a local think tank, with support from the World Bank's Global Partnership for Social Accountability. The overall objective of the five-year initiative, Empowered Citizens Enhancing Accountability of the Education Reform and Quality of Education in Moldova, is to empower Moldovan citizens through their inclusion in the monitoring of school-level inputs and budget allocations. The initiative provides parents and the general public information on key parameters of the school (class size, student-teacher ratio, number of students and teachers, qualifications of teaching staff), school budgets, and spending, as well as exam results, including comparisons to regional and country averages.

My School

An online platform in **Australia** with the objective of enabling the collation and publication of data about nearly 10,000 schools across the country, effectively offering a report card for each school. The website provides three categories of data: operational context, finances and resources, and student performance. An important element of My School is the Index of Community Socio-Educational Advantage (ICSEA), which allows comparisons of similar schools based on socio-educational advantage and prevents the creation of noncontextual ranking tables.

Check My School

Check My School (CMS) was established by the Affiliated Network for Social Accountability in East Asia and the Pacific (ANSA-EAP) with the aim to help improve service delivery in public education in **the Philippines** through the collection and dissemination of information on local school conditions online and in schools. Community volunteers act as third-party monitors to collect and validate information on school characteristics and inputs, filling data gaps and calling attention to any discrepancies with government-collected data.

Khyber Pakhtunkhwa (KP) Independent Monitoring Unit and Punjab Programme Monitoring and Implementation Unit

Government-led independent data collection and monitoring units in **Pakistan** that track key education indicators and disseminate results through online platforms accessible to researchers, journalists, and the general public. Data collection occurs monthly and captures information on teacher and student attendance, retention rates, infrastructure, and management.

1. FRAMEWORK FOR THINKING ABOUT INFORMATION FOR ACCOUNTABILITY

Accountability

The linkage between service delivery and accountability took root with the landmark 2004 World Development Report "Making Services Work for Poor People," which squarely identified service delivery failures as accountability failures. The report called for strengthening what it called the "short route" of accountability—direct relationships between users and service providers—to compensate for entrenched failures in the "long route"—via politicians and public officials (World Bank 2003). Bruns, Filmer, and Patrinos (2011) then applied this accountability framework to education, utilizing a recent surge in the global evidence base on education reforms in low- and middle-income countries. The authors clarify that accountability hinges on having the correct incentives for system actors.

Relationships of accountability exist at all levels in education. For example, Ministry of Education staff and school administrators should be accountable for meeting the requirements of their jobs; the education system should be accountable for educating students; and service providers should be accountable to parents and the community. These more traditional models of accountability assume that service delivery is controlled by public agencies that are answerable to unified oversight authorities. However, an increasingly complex reality challenges this paradigm (UN, 2015). Accountability for education service delivery covers many different relationships among a range of stakeholders—politicians, public officials, private providers, school administrators, teachers, parents, and others—interacting across multiple agencies and locations.

The focus of this report is accountability relationships found specifically at the point of delivery—the school—and including local government and middle-tier officials (such as those at the district, regional, or division level) who have a significant role in implementing and supporting (or not supporting) accountability mechanisms at the local level.

Social accountability

Recently, increased attention has been paid to the idea that citizens play a stronger role in holding local actors to account for the delivery of social services. Variously termed "social," "citizen-led," or "demand-side" accountability, these initiatives are designed to engage citizens directly through improved transparency and access to information (Gaventa & McGee, 2013). Most generally, the assumed link leads from "awareness (through transparency and information) to empowerment and articulating voice, and ultimately accountability (changing the incentives of providers so that they change their behavior and respond to citizen engagement)" (Joshi, 2013). This process is distinct from "long route" political accountability via elected officials and so is seen as especially relevant for countries where representative government is weak, unresponsive, or nonexistent (Fox, 2015).

With social accountability initiatives, information that is shared with citizens are generally of two types: on rights, entitlements, and roles in attaining services; and on the quality and performance of service providers, either in terms of inputs (for example, teacher attendance, textbooks) or outputs (test scores, pass rates). Strategies for disseminating this information vary in intensity, from more passive information campaigns, to more active interventions such as social audits or participatory budgeting (see Box 2).

Open data

More recently, an influx of digital technologies has reconfigured methods, practices, and understandings of accountability reform and information management (McGee & Edwards, 2016). According to the latest World Development Report, "more households in developing countries own a mobile phone than have access to electricity or clean water, and nearly 70 percent of the bottom fifth of the population in developing countries own a mobile phone" (World Bank, 2016b). More specifically, digital technologies have dramatically expanded the information base, lowered dissemination and data management costs, and created more efficient information goods.

Open government and *open data initiatives* in low- and middle-income countries—call them the "younger relatives" of social accountability—are offshoots of a global open development agenda that was spearheaded by the International Development Research Centre in 2008, culminating in 2015 with the development of an International Open Data Charter that outlines six principles for the release of data (see Box 3). Between 2009 and 2012, more than 100 open data initiatives were launched by governments and nongovernmental organizations (NGOs) globally, including well-known national initiatives in Ghana and Kenya, and international initiatives such as the World Bank's Open Data portal (Davies & Edwards, 2012). Such efforts have also been enshrined by multi-stakeholder initiatives such as the Open Government Partnership and Open Data for Development Network.

These initiatives typically achieve their objective by collecting and presenting new or previously hidden information that can be used to support the exercise of accountability, or by republishing or repackaging existing information in a way that makes it more usable (Avila, Feigenblatt, Heacock, & Heller, 2010). The

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Box 2. Types of social accountability initiatives

- **Information campaigns:** Efforts, typically by CSOs or media, to inform citizens about their rights to services, quality standards, and performance of service providers

- **Citizen report cards:** Surveys carried out by citizen groups or independent bodies that capture consumer satisfaction and performance measures

- **Community monitoring:** Efforts focused on monitoring observable features of performance or delivery, such as teacher attendance or textbook delivery

- **Social audits:** A participatory audit in which community members compare stated expenditures or services with actual outputs

- **Scorecards:** A hybrid of report cards, community monitoring, and social audits; a quantitative survey of citizen satisfaction with public services that includes a facilitated meeting between providers and beneficiaries to discuss results and agree on follow-up actions

- **Public expenditure tracking surveys:** Tracking financial inflows allocated from the central level to providers, often done in a collaborative manner between the government, CSOs, and community members

- **Participatory budgeting:** A decisionmaking process through which citizens deliberate and negotiate over the distribution of finances and resources.

Source: Adapted from Ringold, Holla, Koziol, & Srinivasan (2012) and Joshi (2013)

underlying assumption behind these open data portals and other technology-based transparency initiatives is similar to that of social accountability initiatives—that technology will make information more transparent, which will increase civic participation, and that it will provide incentives for providers to offer better services.

This line of thinking was most recently summarized in a report by the UN Secretary-General's Independent Expert Advisory Group on the Data Revolution, which argued that the data and technology revolution drives "more empowered people, better policies, better decision and greater participation and accountability, leading to better outcomes for people and the planet" (IEAG, 2014).

Mechanisms and change agents

A number of possible mechanisms can trigger change when more and better data are directed at various change agents embedded in the education system.

In line with the more traditional theory of change among information, citizen action, and accountability, Bruns et al. (2011) identified three primary channels in which parents and citizens engage to hold education providers to account:

- Choice: Providing parents with hard evidence about learning outcomes at alternative schools allows parents and students to go to their preferred schools

- Participation: By publicizing rights, roles, and responsibilities and by documenting service delivery shortfalls, information can be a motivator for action by citizens

- Voice: Publishing credible information provides content to feed the voice that citizens use to pressure governments

Underlying these mechanisms are several assumptions, including that "the exposure of poor performance will lead to greater responsiveness; that failures in service delivery are due to poor motivation on the part of public officials and not lack of resources or capacities; or that the existence of accountability and transparency mechanisms will have a deterrent effect on errant officials and make them behave better" (Joshi, 2013). Recent research has recognized the limits of such assumptions, coming to a general consensus that transparency alone is rarely sufficient to produce accountability and that more needs to be understood about explicit pathways that could lead to improved service delivery.

For instance, Joshi (2014) recognizes the complexity of multiple pathways of interaction among information, citizen action, and state response, stating that: "all information is not equal; all citizen action is not the same and all state responses cannot be seen as accountability enhancing." In fact, the impact of accountability

policies can range from improving outcomes, to having no effect, or even making matters worse.

In light of these weaknesses associated with fuzzy theories of change, the following is a refined list of precise pathways to improved service delivery that may occur at the school level.

By citizens and communities:

- Communities can engage as local data collectors or verifiers for monitoring purposes, which may reveal service failures (for example, teacher absences) or discrepancies (number of textbooks or missing funds) that drive demand for improvements or reduced corruption (Westhorp, Walker, Rogers, Overbeeke, Ball, & Brice, 2014; Joshi, 2014)

- Information on positive school outcomes or stories of improved quality can motivate collective action by citizens (Westhorp et al., 2014; Joshi, 2014)

- Information on comparative indicators (for example, assessments or financing) can trigger collective action among communities based on the realization that similarly placed groups are receiving better services (Joshi, 2014)

- Civil society can use information to build advocacy campaigns in the media to draw attention to government behavior, such as corruption or inadequate or unequal school resource allocations (UNDP, 2013; Gigler & Bailur, 2014)

- Parents and students can respond to information about individual student performance by investing more time and effort outside of school or by increasing direct engagement with teachers and school administrators

- In contexts where choice among schools exists, comparative school-level information can impel parents or students to change schools

By service providers and local officials:

- Teachers, school administrators, or local officials can respond to monitoring or the collection of information (for example, student performance, attendance), either in anticipation of the application of rewards or sanctions or out of fear of a loss in prestige or status (Ringold et al., 2012; Westhorp et al., 2014)

- Measurements of teacher quality (for example, classroom observation, student test scores) linked with set standards can be used to improve teacher support, training, and collaboration, or precipitate the exit of low-quality teachers (Gill, Lerner, Meosky, 2016)

- School-based management organizations can develop an understanding of school issues and needs, boosting confidence or capacity to advocate for reforms (Westhorp et al., 2014)

- Teachers or school administrators can use assessment results as a diagnostic feedback mechanism and can respond by introducing or retargeting reforms or as a basis for lessons or tutoring sessions (de Hoyos, Garcia-Moreno, & Patrinos, 2015)

- Teachers and school administrators can identify good practice within their own schools or at other schools and can set up mechanisms to propagate and share strategies for improvement

- School administrators can respond to market pressures by improving practices and perfor-

mance, or by adjusting fees (Camargo, Camelo, Firpo, & Ponczek, 2014)

- School administrators and local officials can implement measures to improve the monitoring of teacher or school performance or other school quality indicators

- Local officials can respond to pressure from school-level stakeholders to retarget and redesign reform policies or make changes to allocations of funding and inputs

Identifying *which* local actors use *what types* of information to *what end* is the first step in understanding how to create comprehensive data management and dissemination policies that support accountability channels within wider education systems, rather than as a means of conflicting with or bypassing existing structures. It is especially key to form a deep understanding of when and under what conditions more and better quality data can be used by parents and communities to improve schools given limited resources and competing priorities of governments and CSOs.

This research attempts to find evidence to support answers for the following questions:

1. What are the types and attributes of data that are of most value to inform decisions and empower parents and communities to hold providers to account?

2. What barriers impede the use of data? And what baseline conditions may be necessary?

3. Who are the various data users and collectors?

4. What dissemination strategies best respond to existing demand for information, or generate demand if it does not already exist?

5. Where should data management and accountability systems be located for highest impact?

6. Who is translating and packaging data into actionable information?

2. ASSESSING THE EVIDENCE

Evidence base

Due to the complexity of relationships involved and the variety of potential pathways of change, it is no surprise that recent attempts to answer "what works?" have been inconclusive at best. This is partly due to the fact that this is a new field of study, particularly in the case of open data, which means that evidence is fragmented, geographically concentrated, and difficult to generalize.

However, even more problematic is that remarkably few studies explicitly state the assumed connections among transparency, accountability, and citizen engagement, which limits understanding and applicability to other contexts. Heavily cited studies have found both failure (Banerjee, Banerji, Duflo, Glennerster, & Khemani, 2010; Lieberman et al., 2014) and success (Reinikka & Svensson, 2011; Pandey, Goyal, & Sundararaman, 2011). But without a clear theory of change, it is difficult to ascertain whether initiatives failed because needed enabling conditions were absent, the type of information was misaligned with the audience, or lack of information was simply not the only bottleneck to effective accountability relationships, among many other possible reasons.

We have undertaken an exercise to categorize and assess impact evaluations with the aim of generating lessons on the component or design parts of information for accountability initiatives, rather than particular strategies of implementation (such as open data portals or social audits). Looking at the class of information for accountability interventions collectively makes it possible to draw needed insight into what makes particular initiatives fail or succeed, and what strategies can be implemented in the future to mitigate constraints.

The idea here is not just to help clarify what works but why reforms work (or do not).

This work builds from similar attempts, such as by Fox (2015) and Kosack and Fung (2014), to systematically reframe the mixed evidence in support of or counter to the transparency for accountability causal chain. This exercise also takes advantage of the availability of new impact evaluations, which allows a larger pool from which to extract specific evidence within the education sector. It is important to note that the scale of interventions varies from highly localized initiatives at the school or community level to nationwide dissemination plans and data platforms

In our review, we distinguish among a range of intensities of information interventions—based on whether information is **collected** (at its most passive), **disseminated**, or **made actionable**. We then tie these interventions to their associated **change agents**—the actors within the local education structure that are presumed to change behaviors in response to the information being collected or shared. We first build from a comprehensive theory of change between information and improved service delivery at the school level and then categorize and assess 25 quantitative and qualitative evaluations within the education sector, ranging from experimental and quasi-experimental designs to observational case studies (see Figures 2 and 3). Studies that assessed different components of interventions within a single country or context were separated and analyzed independently, bringing the total count in the analysis to 30 distinct intervention "arms."

As the value of information provision is the main indicator of interest for this exercise, we have included only evaluations that isolate impacts of information exclusive from other "tied" reforms, such as impacts associated with hard accountability interventions that

establish performance standards tied to sanctions or rewards, or diagnostic feedback interventions that are tied with different levels of training and follow-up actions (for example, pedagogical effects). We have also excluded studies without a set aim of improving education service delivery. That excludes an important subset of interventions that provide information on the value or returns to schooling, which influences the basic parental choice of whether to send children to school at all. This would be an important area of follow-up for future research.

Within the 30 intervention "arms" that were analyzed, we found 60 distinct designs of information-based interventions, with nearly equal representation between efforts that simply opened information to the public domain and those that attempted to make information actionable through training or facilitated communications. We could identify only a handful of cases in which collection and monitoring efforts were assessed separately from hard accountability interventions. Distribution among these different types of interventions and targeted change agents was relatively even, with many interventions targeting multiple actors simultaneously. A little over half of the studies made comments on whether student learning outcomes improved or not.

Figure 2. Mapping components of information-based interventions in reviewed studies

Note: Many of the reviewed studies tested impact of multiple types of interventions, targeted change agents, and outcomes, so the numbers between nodes will not align perfectly.

Figure 3. Expanded theory of change: Using education information to improve learning

PASSIVE ⟷ ACTIVE

Interventions					
Collection	**Dissemination**			**Information made actionable**	
Citizen or school-level monitoring (for example, text message reporting; school report cards)	Sharing of general information about rights and responsibilities of parents in school relationships and operations, expected learning outcomes of students, and rights to financing	Sharing of specific information about school-level inputs (for example, teacher attendance, infrastructure, textbooks)	Sharing of specific information about school-level outputs (for example, pass/fail rates, student assessment results)	Collection or sharing of information plus facilitated meetings with parents, teachers, or administrators to explain the information	Collection or sharing of information with training or instructions for parents or teachers on how to engage or work with children, or the generation of school improvement plans with school administrators

⬇

Intermediate outcomes			
Student	**Parent**	**Teacher**	**School management or local officials**
Increased attendance Greater effort in school and at home	Increased awareness of rights, quality, and expectations Increased pressure on teachers and administrators Increased investment of time with own children; more schooling material in the home; increased engagement with the school Exercise of choice in favor of better performing schools	Improved attendance Greater effort in class Better engagement with parents Adoption of good practices from other teachers or schools Exit of low-quality teachers	Better functioning school-based management organizations Increase in discretionary budgets at school level Lower fees Reduction in leakages of funds Improved monitoring of and support for teacher performance

⬇

Improved learning

Key Findings

1. Data collection interventions

We found four cases in which information was collected but not tied to particular sanctions or rewards. These cases varied in technological penetration, from simple scorecards or reports, to mobile monitoring through text messages and cameras verifying teacher attendance and class occurrence. Not surprisingly, since the number of cases included is small, it is difficult to draw conclusive lessons.

Monitoring needs to be tied to sanctions or rewards: These studies do suggest, however, that monitoring is most effective in cases where sanctions or rewards are implied, if not explicitly stated (see Table 1). For instance, a randomized monitoring intervention in Niger looking at the impact of mobile monitoring of an adult education program found more pronounced positive effects on student learning where outside options for teachers were lower, suggesting that these teachers increased effort because of worries about not being able to find another job or source of income if punished for absences. Similarly, evidence from Duflo,

Hanna, and Ryan (2012), using a unique structural dynamic model to isolate effects of a monitoring program in Rajasthan from associated financial incentives, found no independent effect of monitoring on teacher attendance or student test scores. However, when tied to financial incentives, both teacher attendance and student learning were substantially higher—test scores in treatment schools were 0.17 standard deviations higher than in comparison schools and, two and a half years into the program, children from treatment schools were 10 percentage points more likely to transfer to formal primary schools, which requires passing a competency test.

Similarly, an evaluation that tested two local monitoring schemes in rural primary schools in Uganda where head teachers were required to submit daily reports of teacher attendance found that teacher attendance was higher, non-reports of absent teachers were less frequent, and reported presence was higher when the collected information was tied to bonus payments (Cilliers, Kasirye, Leaver, Serneels, & Zeitlin, 2014). While attendance was slightly higher in "information only" schools than in control schools, this was not statistically significant.

Table 1. Local collection interventions

Study	Location	Details	Collecting agents			Impact	
			Parent or student	Teacher	School management or local officials	Intermediate variables	Student learning
Aker and Ksoll (2015)	Niger	Weekly phone calls checking whether classes were held	✓	✓	✓		+
Barr et al. (2012)	Uganda	Scorecard on school-inputs implemented by School Management Committee	✓			Null	Null
Cilliers et al. (2014)	Uganda	Reports from head teachers verifying teacher attendance through text messages		✓		Null	
Duflo et al. (2012)	India	Students take pictures to verify teacher attendance	✓			Null	Null

2. Dissemination interventions

The share of interventions that simply disseminate information without accompanying strategies to make the information actionable range from information campaigns with easy-to-read pamphlets delivered directly to parents to comprehensive online portals that aim to engage all stakeholders simultaneously.

In these cases, in addition to assessing impact on intermediate variables and student learning, we have added an "awareness" variable, since a number of interventions have been implemented too recently to glean evidence of longer-term impact. Awareness here acts as a *first-order* variable, which would be necessary, but not sufficient, for further use of information to impel citizen or provider response.

In the absence of awareness, it can be assumed that these types of interventions would not follow with future improvements in service delivery. For the purposes of our analysis, when longer-term interventions presented impacts on either intermediate variables or student learning, we assumed that awareness had improved if outcomes were positive (and not applicable otherwise), even when the study did not explicitly address whether end users were aware of the information.

Success is context-specific: In line with previous research, we find that these "information only" interventions are highly context-dependent, suggesting that success depends on the existence of enabling conditions (discussed in the following chapter). More specifically, we find that dissemination interventions are more likely to succeed in cases where lack of information is the *only* bottleneck for behavior change at the school level (see Table 2).

For instance, a recent evaluation on an information intervention in Argentina (de Hoyos, Ganimian, & Holland, forthcoming) showed that providing diagnostic feedback to teachers on student performance on standardized math and Spanish tests led to positive and significant impacts on student learning outcomes. The study found that simply providing information on outcomes was enough to push schools to a new equilibrium characterized by a clear diagnosis of important challenges. This is likely the case because Argentina benefits from a comparatively responsive teaching force and, therefore, fewer capacity constraints to implementing pedagogical reforms than in other contexts.

Context is also important at the subnational level. For instance, three separate studies evaluate the release of national exam (ENEM) scores in Brazil, displayed online but also commonly disseminated through media in the form of ranking tables (Camargo et al., 2014; Firpo, Ponczek, & Possebom, 2015; Lepine, 2015). Camargo et al. (2014) found no effect of the release of ENEM scores on either school composition or school observable inputs (number of enrolled; proportion of teachers with college degrees; ratio of computers to staff, and teachers to students; probability of having computer and science labs). Similarly, Lepine (2015) found no impact on enrollment in either private or public schools and no loss of students in poorly performing schools.

However, Firpo et al. (2015) found that the release of ENEM scores led to changes in private school tuition fees—an increase in one standard deviation in the school average test score was associated with a price increase of R$41 in monthly tuition fees—and Camargo et al. (2014) found positive effects on private school test scores. This suggests that private providers in Brazil have the ability and incentives to respond when relevant information about school performance is made available.

Table 2. Dissemination interventions

Study	Location	Type of Information	Format	Agents of change			Impact		
				Parent or student	Teacher	School mgmt or local officials	Awareness	Inter-mediate variables	Student learning
Camargo et al. (2014)	Brazil	Outputs	Website; newspaper		✓	✓		Null	Mixed [2]
Cerdan-Infantes and Filmer (2015)	Indonesia	Rights and responsibilities	Pamphlet	✓			Null		
			Text messages	✓			+	+	
de Hoyos et al. (forthcoming)	Argentina	Outputs	Diagnostic report		✓	✓	+		+
Firpo et al. (2015)	Brazil	Outputs	Website; newspaper			✓	+	+	
Lepine (2015)	Brazil	Outputs	Website; newspaper	✓				Null	
McMurren et al. (2016)	Tanzania	Outputs	Website	✓	✓	✓	Null		
Mizala and Urquiola (2009)	Chile	Outputs	Newspaper	✓		✓		Null	
Reinikka and Svensson (2011)	Uganda	Rights and responsibilities	Newspaper	✓		✓	+	+	+
Shkabatur (2012)	Philippines	Inputs	Website	✓	✓	✓	Null		
Taut et al. (2009)	Chile	Outputs	Pamphlet; report	✓	✓	✓	Null		
World Bank (2011)	Sri Lanka	Inputs; outputs; rights and responsibilities	Report card	✓	✓	✓		Null	Null
Young and Verhulst (2016)[3]	Mexico	Inputs; outputs	Website	✓		✓	+		

Targeting a specific audience helps: These findings from Brazil also suggest that information is most likely to lead to successful interventions when it is directed at the management level, either exclusively or in tandem with either teachers or parents. Lepine's study (2015), which assessed whether parents respond to information by changing schools, showed null effects, whereas both Camargo et al. (2014) and Firpo et al. (2015) demonstrated positive effects of information on provider response in the context of the private school market.

Similarly, a widely cited study by Reinikka and Svensson (2011) illustrated the success of a newspaper campaign in reducing capture of school capitation grants, and the authors credited the reduced corruption to incentives faced by district officials, who believed the threat of punishment had increased since local politicians had signaled the prioritization of education as well as strengthened systems of oversight. The positive effect on student achievement was also credited to school administrators allocating more funds to non-wage items such as textbooks, school meals, and flip charts. Hubbard (2007) warns against overestimating Reinikka and Svensson's results, however, clarifying that the information campaign took place alongside a number of concurrent reforms in Uganda's education system, which likely "strengthened the resolve within the Government for reform and also hardened the resolve of the donor community to reduce leakages." In this case, it is likely that the disclosure of information was a necessary, but not sufficient, condition for improvement.

Conversely, it can be seen that interventions are more likely to fail when information is not targeted with a specific audience in mind. All four cases where information was provided with the aim of engaging all stakeholders—parents, teachers, and school- and district-level officials—failed to demonstrate any aware-ness of or use by the end users. This is demonstrated by the failure of open data platforms in both Tanzania and the Philippines to generate awareness or use. This is partly due to the low internet penetration in both countries, but also the fact that "both the public and policymakers are looking for the insight contained in the data, not the data itself." Or, to put it another way: "Data is frightening for many people, so raw data is going to appeal to a vanishing few. Open data needs to be open plus curated plus chewed plus digested to appeal to most people, including policymakers" (McMurren, Verhulst, Young, & Sangokoya, 2016).

Moreover, Taut, Cortes, Sebastian, & Preiss (2009) demonstrated that the assumptions behind the publication of SIMCE data (the national student achievement testing system) in Chile are actually at odds: parents were expected to exercise school choice based on school quality information and, at the same time, engage more regularly with teachers and administrators to improve learning; teachers were expected to use SIMCE data as a formative, diagnostic tool to improve pedagogical practice in the classroom in response to increased parental pressures; and directors and administrators would use SIMCE to support school-level actions based on relevant indicators of learning. However, Taut et al. (2009) noted that the formative feedback purpose and the accountability purpose stand in contradiction—at once, parents were expected to "vote with their feet" (i.e., choice) and shift from low-performing schools to higher-performing schools, but also act as drivers of change and engage with schools more frequently during parent meetings where such information is shared (i.e., voice). The authors stated that the two expected reactions necessarily demand different communication strategies, for example, "comparison tables to inform parental school choice versus in-depth information on school performance to empower parents to request school improvement."

These examples make clear that information interventions need to carefully consider the audience as well as the presumed causal pathway to improve service delivery. An interesting strategy is used in the case of Mexico's Mejora Tu Escuela (Improve Your School) project, which comprises two parts: a public-facing platform targeted at parents and other citizens with information on schools and tools to address shortcomings, and a focus on the public-policy side that reports on problems with transparency, corruption, teacher payrolls, and the like (Young & Verhulst, 2016). The two aspects of the project are mutually reinforcing, but they are specifically designed with different audiences in mind.

3. Information made actionable ("information +")

Overall, it is clear that information interventions are far more likely to succeed when they are implemented in combination with direct avenues of promoting action, either through facilitated meetings, the design of a school improvement plan, or providing training or instruction on how to improve student learning. Of 13 unique interventions, eight show positive impacts on either intermediate variables or student learning (or both) (see Table 3). This implies that in many cases in low- and middle-income countries, lack of information is only one constraint among many in delivering qual-ity education.

Most interestingly, an intervention in Indonesia that provided parents with information on entitlements under the school grants program in combination with facilitated meetings led to increased participation by parents in formal channels for providing feedback to schools (Cerdan-Infantes & Filmer, 2015). However, different interventions within the same program led to different results. In the case where information was provided only on pamphlets with no associated meetings, no impact on parental engagement was seen.

Similarly, when information was provided over text messages, parents tended to increase participation through informal channels rather than in school committee meetings.

The audience matters: Previous findings that interventions are more likely to lead to success if they are directed at the management level also hold for "information +" interventions. Of the six interventions that show no impact on either intermediate variables or student learning, five did not attempt to engage school administrators or district managers.

However, in contrast to dissemination interventions, "information +" interventions are not as strongly associated with null impacts when all stakeholders are targeted simultaneously. Of four unique interventions that engage parents and students, teachers, and administrators, three were successful. It is not clear whether this is due to differences in use of nontechnological methods of dissemination, such as scorecards and pamphlets, as opposed to online formats, or that facilitated meetings and other strategies were the key to overcoming coordination problems or facilitating action.

Parents act on particular types of information: Also in contrast to dissemination interventions, the results related to interventions that particularly target parental engagement are more mixed. In these cases, it appears that what matters most is the *type* of information being shared.

To be more specific, parents do not appear to act most often upon information on school outputs, but seem far more likely to respond to data on inputs or information clarifying the roles and responsibilities of parents to schooling. For example, an intervention that provided parents information on their oversight roles in schools and education services in the Indian states of

Table 3. Information made actionable ("information +")

Study	Location	Type of Information	Format	How the information is made actionable	Agents of change			Impact	
					Parent or student	Teacher	School mgmt or local officials	Inter-mediate variables	Student learning
Andrabi et al. (2013)	Pakistan	Outputs; inputs	Report card	Facilitated meetings where parents can discuss freely	✓		✓	+	+
Banerjee et al. (2010)	India	Rights and responsibilities	Pamphlet	Facilitated meetings	✓	✓		Null	Null
		Rights and responsibilities; outputs	Pamphlet; scorecard	Facilitated meetings plus training for monitoring and preparing scorecards	✓	✓		Null	Null
Barr et al. (2012)	Uganda	Rights and responsibilities; Inputs	Scorecard	Facilitated meetings to define objectives, roles, and indicators of school progress	✓	✓	✓	+	+
Cerdan-Infantes and Filmer (2015)	Indonesia	Rights and responsibilities	Poster	Facilitated meetings	✓			+	
de Hoyos et al. (forthcoming)	Argentina	Outputs	Diagnostic report	Support to design and implement a school improvement plan		✓	✓		+
Galab et al. (2013)	India	Rights and responsibilities	Scorecard	Facilitated meetings; training on effective management; training on monitoring	✓	✓	✓	+	+
Lassibille et al. (2010)	Madagascar	Inputs; outputs	Report card; guidebook	Facilitated meetings; workflow templates and tools; training on motivating better performance; instructional guidebooks		✓	✓	+	Null[4]
Lieberman et al. (2014)	Kenya	Outputs	Calendar; poster; text messages; flier	Parents given strategies to improve learning	✓			Null	
Muralidharan & Sundararaman (2010)	India	Outputs	Diagnostic report	Instructions on how to use performance reports and benchmarks		✓		Null	Null
Pandey et al. (2011)	India	Rights and responsibilities	Film; poster; calendar; booklet	Facilitated meetings and clear pathways for complaints outlined	✓			+	+
Wild and Harris (2011)	Malawi	Inputs	Scorecard	Facilitated meetings; joint development of action plans	✓	✓	✓	+	
World Bank (2011)	Sri Lanka	Inputs; outputs	Report card	Training in management and participation; joint preparation of school development plan	✓	✓	✓	Null	Null

Uttar Pradesh, Madhya Pradesh, and Karnataka led to improved learning outcomes and reduced teacher absenteeism, driven by increased participation of parents in school committee meetings (Pandey et al., 2011).

Conversely, a study by Lieberman et al. (2014) found that providing parents with information about their children's performance on literacy and numeracy tests led to no impact on parental behavior or engagement, even when combined with materials about how to be more involved in improving their child's learning. This complacency can be partly explained by low expecta-

tions of parents regarding school quality. For instance, In the case of Mexico, parents are largely satisfied with their children's education despite the fact that the country performs poorly on various global measurements of education quality (Young & Verhulst, 2016). This underscores the need to relay information on rights and entitlements beyond just performance data, either by setting explicit standards or in providing a means to compare quality measures among different contexts, alongside tools and strategies to hold providers to account.

3. IMPLEMENTATION CONSIDERATIONS

Given the middling evidence base in support of the assumption that data transparency automatically leads to data use and action, it is essential to consider barriers to data use as well as conditions that may be necessary for impact. A broad reading of the literature reveals general themes about the prospects and challenges of relying on the availability of more and better data to improve service delivery. The following section explores these general lessons, divided into two elements: enabling conditions and design considerations (see Figure 4).

Enabling conditions facilitate and drive different processes and channels, such as the meaningful engagement of citizens, or improved decisionmaking and targeting of reforms by policymakers. Importantly, these conditions determine whether fertile ground exists for the implementation of information-based initiatives, or, more simply, whether such initiatives should be attempted at all. Design considerations, meanwhile, capture common environmental constraints that can be mitigated by design strategies and do not preclude the implementation of reforms. These two elements capture what is generally understood as "prerequisite" and "constraining" conditions.

Figure 4. Implementation of information-based interventions: Enabling conditions and design considerations

Enabling conditions

Political
- Incentive to release data and respond to demand
- Culture of accountability
- Capacity and decisionmaking capabilities

Societal
- Strong public demand for information
- Legitimate, independent, capable, and engaged CSOs and media

Technological
- Affordable, available, and accessible technology

Legislative
- Established data policies and regulations

Design considerations

| Data quality and availability | Digital and societal divides | Tension among stakeholders |

Enabling conditions

Recent systematic reviews in both the social accountability and open data fields (Westhorp et al., 2014; UNDP, 2013; O'Meally, 2013; van Schalkwyk, Willmers, & Schonwetter, 2015; Ubaldi, 2013; Janssen, Charalabidis, & Zuiderwijk, 2012; Menocal & Sharma, 2008; Gurstein, 2011; Joshi, 2014; Verhulst & Young, 2016) have identified several contextual factors that appear to matter most for information-based initiatives. The social accountability literature emphasizes the importance of political and societal environments in shaping the impact of reforms, but as open data initiatives have become more prominent in development agendas, enabling conditions have been broadened to also include technological and legislative factors.

Importantly, these four primary drivers of information-based processes—political, societal, technological, and legislative—are, of course, not mutually exclusive but are composed of overlapping and reinforcing relationships that cannot be understood in isolation.

Political

Social accountability and open data initiatives are typically classified as demand-side interventions—i.e., enabling and empowering citizens to hold largely unresponsive political actors and service providers to account in fulfilling their roles and responsibilities to the people. However, the success of such initiatives hinges not only on citizen actors, but also on parallel efforts from the supply side to respond to and address growing demands and expectations that arise with access to better information. Importantly, the supply side of the accountability equation includes actors within the "middle tier" of the institutional system—for example, local government bureaucrats, district officers, school principals, and so on—especially in view of increasingly decentralized decisionmaking in the education sector.

Broadly speaking, this responsiveness is a function of *high-level support, the strength of existing processes of accountability, and institutional capacity.*

High-level support: Recent policy discussions about the role of the public sector in service provision highlight a new awareness that service delivery weaknesses that appear on the surface to be capacity limitations actually have more to do with incentive structures (Booth, 2011)—or what can be understood as the willingness to engage in accountability relationships. In terms of information-based reforms, these incentive structures are twofold: governments must be willing to open up data for dissemination and use (or, at the very least, not stymie efforts by independent collecting actors such as CSOs), as well as be willing to engage and respond to increased demands for reform.

Not surprisingly, many government officials are hesitant to release data, particularly more sensitive data sets, to the public. This stems from fear associated with being questioned or sanctioned about the information contained in data sets, as well as fear that truly open data can be edited in such ways that harm the integrity of the data, and perhaps even manipulated to show government actors in a negative light. The latter fear, specifically, results in many data sets being released in formats such as PDF files that make analysis and reuse difficult.

Alongside this mindset of fear, institutional culture is built in such a way that ownership of data can be used as a means to exert power and influence (Lwanga-Ntale, Mugambe, Sabiti, & Nganwa, 2014). Making information more transparent thus threatens traditional power relationships, with benefits largely falling to data *users* rather than data *releasers*. This is put most plainly by Waldo Jaquith, the U.S. government's head of open data, who recently said, "Right now, it is irrational for almost anybody who works in government to

open data...[I]f he fails to open data, worst case, nothing bad happens. But if he does open some data and it has [personal information], then his worst case is he's hauled before a legislative subcommittee, grilled, humiliated, and fired" (quoted in Carolan, 2016). This skewed incentive system demands high-level champions in key positions to take on the cause of transparency, as was the case in Australia with the perseverance of the Prime Minister Julia Gillard in the promotion of the My School platform (see Box 4).

This makes the process of making data more transparent quite difficult, especially considering the large costs associated with building the necessary infrastructure of data systems, including the collection, cleaning, reconciliation, and publication of data. Most difficult in this process is that beneficiaries are widespread, whereas those that stand to lose the most from the release of

data are more concentrated. For reforms to succeed, these disincentives for action must be remedied—through co-option, concession, or reward.

Once information is made transparent and accessible, governments must be willing to address and respond to weaknesses in service delivery by applying, enforcing, or retargeting policy incentives for service providers through rewards or sanctions. To do this, officials must create or strengthen feedback systems among citizens, service providers, and officials at the highest levels. Indeed, a recent report that explored the relationship between transparency and citizen engagement argues that even in cases where nonpolitical information-based initiatives improve service outcomes, "they may do so by letting political leaders, public officials, and frontline service providers 'off the hook' and, in effect, require citizens to provide public goods for them-

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Box 4. Case study snapshot: High-level support for My School

The creation of My School benefited from a broader push by the Australian government toward transparency and accountability across all policy areas. In the health sector, the commonwealth had unveiled My Hospitals, an online scheme similar to My School intended to enable communities to rate their local health outlets and access funding information. Similarly, there was a simultaneous push in the nonprofit sector to increase transparency through the creation of the Australian Charities and Not-for-Profit Commission and the tightening of tax concessions for unrelated business profits.

This positive enabling environment partly stemmed from strong advocacy from the highest levels, particularly Julia Gillard, who transitioned from education minister and deputy prime minister to prime minister during My School's implementation. Gillard is widely acknowledged as the driving force behind My School, and many credit the successful passage and implementation of the policy to her commitment to issues of transparency and accountability, even in the face of significant opposition from teachers and teacher unions.

In addition, the advancement of the commonwealth agenda for increased transparency benefited from a time of particularly strong commonwealth-state relations. During 2007-2010, when My School was first negotiated and implemented, the federal Labor government enjoyed the support of Labor governments in seven of the eight states and territories, an unusual scenario in Australian politics that provided a unique window for collaboration.

selves," or they may simply displace issues to "other times and other areas outside the limelight of the information campaign" (World Bank, 2016a). These actions fall short of the necessary structural change needed within systems and thus limit the sustainability and scalability of reforms.

Culture of accountability: Political will to respond to and foster social accountability and open data initiatives is often a symptom of the larger policy culture where systems of accountability have been institutionalized in practice. This predisposition of the state to encourage citizen engagement or open up data to scrutiny is often simply understood as the extent of democratization, though some researchers recognize that democracy is an imperfect measure of policy culture. For instance, democracies can be dominated by technocratic styles of policymaking that are insulated from the public, which may hamper the success of social accountability or open data reforms (UNDP, 2013). So, too, autocracies or heavily centralized governments may still promote inclusive accountability mechanisms as a means to monitor and manage public officials at the local level (World Bank, 2016a). This is demonstrated by a recent example from a social accountability initiative in China that was able to work collaboratively with local government officials to improve conditions for people with HIV, despite a restrained legal space that limited the ability of CSOs to conduct advocacy campaigns (Wetterberg, Brinkerhoff, and Hertz, 2016).

Institutional capacity: In practice, even when they are willing to open and disseminate data sets, many governments are struggling to build the capacity needed to institute comprehensive data systems. It takes a great deal of sustained effort to collect, interpret, translate, and share data, including managing the difficult first steps of deciding what and how to measure and how to address privacy concerns. Unfortunately, the slow rate of institutional change is often at odds

with rapid shifts in political priorities, leaving little time to build the necessary capacity of institutional actors for complex technical reforms (van Schalkwyk et al., 2015).

Effective response requires the establishment of clear roles and positions of power, where responsibilities are allocated and aligned with the capacity to exercise decisionmaking functions or change rules or behaviors in response to demands for reform. For instance, information on school-level budget allocations is less useful if schools do not have at least some responsibility over a portion of discretionary spending.

Societal

The capacity and willingness of the *public* to engage with data are as important as on the supply side—absence of either distorts the accountability ecosystem (Lwanga-Ntale et al., 2014). Importantly, strong public demand must exist on all levels of civil society, particularly from data users such as citizens, community members, media, and academic researchers. In addition, users must have the capacity to access, understand, and act based upon available information. These accountability processes and relationships are undermined by contexts with high levels of inequality, social exclusion, or fragmentation (O'Meally, 2013).

Beyond the capacity and demand of individual citizens, the success of information-based initiatives depends on civil society organizations or media that often mediate the collection and dissemination of information—broadly referred to as "infomediaries" in the literature (see Box 5). When the ability of citizens to understand, process, and act on information is constrained, the media, CSOs, research groups, or ICT organizations can help translate and communicate information in more easily actionable ways. These groups may also be able to shrink wide inequalities by specifically seeking out

and providing information and channels for change to the most marginalized. However, infomediaries alone are not always able to generate interest in information in cases where demand is lacking. For instance, a recent review of ASER in India and Uwezo in Kenya, Tanzania, and Uganda, organizations that promote the use of citizen-led assessments, found only limited evidence that participation in the survey stimulates awareness or action within communities (Results for Development Institute, 2015).

Technological

New technologies for transparency and accountability initiatives are wide-ranging and generate a lot of excitement—social media platforms, text messages, cloud services, mobile apps, and web interfaces. The increasing popularity of open data initiatives has placed a heavy burden on both citizens and states as they seek to establish the necessary technological infrastructure to radically upgrade data and transparency systems.

Box 5. Case study snapshot: Infomediaries

Moldova: As a strategic maneuver, the Moldovan think tank Expert-Grup has created a Project Advisory Board with members from the Ministry of Education, representatives from the Parliament's education committee, the Ombudsman for Child Rights, and the media. This process has enabled Expert-Grup to organize ad hoc meetings to keep both the government and the media engaged, and it ensures that the project is well-placed in the broader transparency and social accountability space.

Philippines: Check My School has been able to re-strategize and respond to limitations in the initial conception of the project in part due to ANSA-EAP's connections and prior experience with G-Watch and Textbook Count. With these existing connections to volunteers and local stakeholders, the group is well-placed to facilitate vertical engagement among local government bodies, schools, and citizens despite occasional reservations by ministry officials.

Australia: My School has become a helpful tool for education researchers, who are able to analyze the education system across several areas, such as finance, demographics, and performance, and use these data to identify school characteristics and verify the impacts of interventions. In one such project, researchers were able to utilize My School data to identify individual schools with atypical characteristics, including two schools with ICSEA scores exceeding 1,300 (representing schools with students with very educationally advantaged backgrounds), which spurred media attention and reactions from citizens.

Pakistan: Easy access to data in Punjab has fueled data-driven journalism. The number of stories published every week highlighting issues pertaining to access, infrastructure, and quality of education is unprecedented in the province. These stories not only build pressure on the government to deliver, but also spread awareness and encourage civic engagement. Whereas communications from the government are not always seen as trustworthy due to bipartisan campaigns, media reporting is widely perceived as a credible source of information.

Michael Gurstein helpfully broke down these technological elements and capacities in a model for effective data use in a highly cited landmark piece from the open data movement:

1. *Internet*—having an available telecommunications/internet access service infrastructure sufficient to support making the data available to all users. Issues here would include:
   - Affordability of internet access
   - Availability of sufficient bandwidth
   - Accessibility of the network
   - Physical accessibility/usability of access sites

2. *Computers and software*—having access to machines, computers, and software to access and process the available data and machines that are sufficiently powerful to do various analyses; having sufficient time on the equipment to do the analyses (many people need to share computers); knowledge of how to operate the equipment sufficient to access and analyze the data, and so on.

For low- and middle-income countries, however, the latest technologies may not be the best platform for dissemination. Many information-based initiatives have found the greatest success with text messages or radio campaigns, or even at the most low-tech, with newspapers or simple paper pamphlets and posters (Cerdan-Infantes & Filmer 2015; Pandey et al., 2011). Also helpful are accounts that interpret the data or stories that demonstrate successful action (see Box 6). Still, the same principles identified by Gurstein apply—affordability, availability, accessibility, and appropriateness. The key to success is that the platforms for collection and dissemination are tailored to the end user.

Legislative

As more data are collected and this information becomes more open, tensions inevitably arise between

> ### Box 6. Case study snapshot: The Check My School platform
>
> Recognizing the limitations of a technology-based data transparency initiative in a country with low internet penetration, Check My School has changed earlier requirements that obligated volunteers to upload validated school-level data to the CMS website. Now volunteers are simply asked to submit reports stating how data have been used at schools to resolve issues.
>
> A key redesign of the CMS website includes "stories of change" meant to highlight success stories and motivate commitment from both citizens and governments. The secretariat has also utilized social media to attract users who might not have the means to directly engage with the website.

demands for transparency and the right to privacy. As such, as part of the technological infrastructure, open data and social accountability initiatives are more likely to succeed in states with established data policy and regulations, including open data licenses that make clear who owns access data and who is able to use them and that clarify complexities found with competing legal frameworks for copyright and related rights.

It is clear that privacy considerations are not yet an integral part of the global drive toward open data. A recent report by the Open Rights Groups, a digital privacy campaigning organization, found that "the regulation of privacy in the developing world is very patchy" and that the vast penetration of digital technologies leads to a "very high" risk of privacy violations (Open Rights Group, 2014). Moreover, open government data policies often still belong to existing legal freedom of information frameworks, resulting in uncertainty about the

legality of data reuse and publication (Attard, Orlandi, Scerri, & Auer, 2015)

Design considerations

Even what appear to be the most ripe environmental contexts do not ensure that transparency and accountability initiatives will take hold and create impact. As Joshi (2014) noted, assessing the enabling conditions of a particular context—especially deeply rooted societal and political structures—is most helpful in identifying whether open data reforms should be considered at all, not in determining which strategies are most likely to work. In response, Joshi encouraged a micro-level approach that assesses the local factors that affect how information-based initiatives unfold, and the varied extent to which they are successful within otherwise broadly similar contexts.

For analytical purposes, these micro-contexts can be understood as particular challenges that may be encountered during the implementation process that can be mitigated by different design strategies.

Data quality and availability

A simple but critical point is that transparent data systems are only as strong as the source data. The key tenets of the open data movement are that data should be open by default, timely, comprehensive, comparable, interoperable, and machine-readable. Underpinning these principles is the simpler assumption that data are available, trustworthy, and usable.

In some cases, making data systems transparent will simply be a matter of making existing data available to the public, or adapting existing data sets to be more accessible or useful to consumers. For instance, in Australia, most of the data made available on the My School website were already being compiled by schools or state and territory governments. In addition to these existing data sets, though, the My School devised an Index of Community Socio-Educational Advantage, which provides schools a score based on socio-educational advantage and enables fair comparisons of similar schools.

In most countries, however, a necessary first step will be instituting structured and timely data collection systems to fill large data gaps, either by governments themselves or capable and trusted infomediaries that are able to collect missing data or data that can be used to contest or validate official information. For instance, when the Mexican Congress passed legislation requiring states to provide the federal government with information on school conditions and expenditures, follow-through was weak, with 12 of 32 states handing over empty or incomplete databases. In 2013, the Mejora tu Escuela initiative stepped in to provide parents and other stakeholders comprehensive data on schools and payroll information to empower officials to root out ghost teachers and other forms of corruption (Young & Verhulst, 2016).

Strengthening (or establishing) student assessment systems will be especially important for understanding the reasons behind the quality deficit in education. Recently, the Center for Global Development argued that standardized national assessments are integral for ensuring that all children, even the most marginalized, are counted (Sandefur, 2016). This is because existing international standardized tests are available only for wealthier countries and thus tend to "celebrate the success of the successful, and sweep most poor kids in most poor countries under the rug" (Sandefur, 2016). In addition, citizen-led assessments (for example, ASER and Uwezo), which were put in place to as localized solutions to missing data, have so far failed to impel necessary policy changes and improve student test scores (Lieberman, Posner, & Tsai, 2014; Results

for Development Institute, 2015). To ensure that data are useful for stakeholders, it is important for assessment data to be available at the school level and ideally comparable with school inputs, socio-demographic information of students, and financing, which are often siloed in different agencies.

When governments are the primary collectors and publishers of data, use of these data is limited due to technical as well as supply-side barriers. Specifically:

- Often, data are kept in formats such as PDFs that are not machine-readable because either that is the form the data are collected, or hesitation by government officials to release data that may then be manipulated (Sabiti, 2014; Canares, 2014).

- Data that are released are often the low-hanging fruit, such as national budgets, that is of little value to data consumers and thus have little influence over accountability relationships and are difficult for public users to understand (Lwanga-Ntale et al., 2014; Khan & Foti, 2015). A recent Open Data Barometer study found that "although more and more countries are making open data available, politically sensitive datasets and those that are crucial to supporting accountability efforts are among the least likely to be published" (Davies, 2014).

- Data that are available are often not detailed or disaggregated to the subnational level, and thus are less useful to strengthen accountability relationships at the point of service delivery (ie., at the school level) (DI, 2014).

In some cases, the international donor community aggravates this process of making weak or superficial efforts to publish data by making the release of data a metric for triggering the release of funding. This has created "stron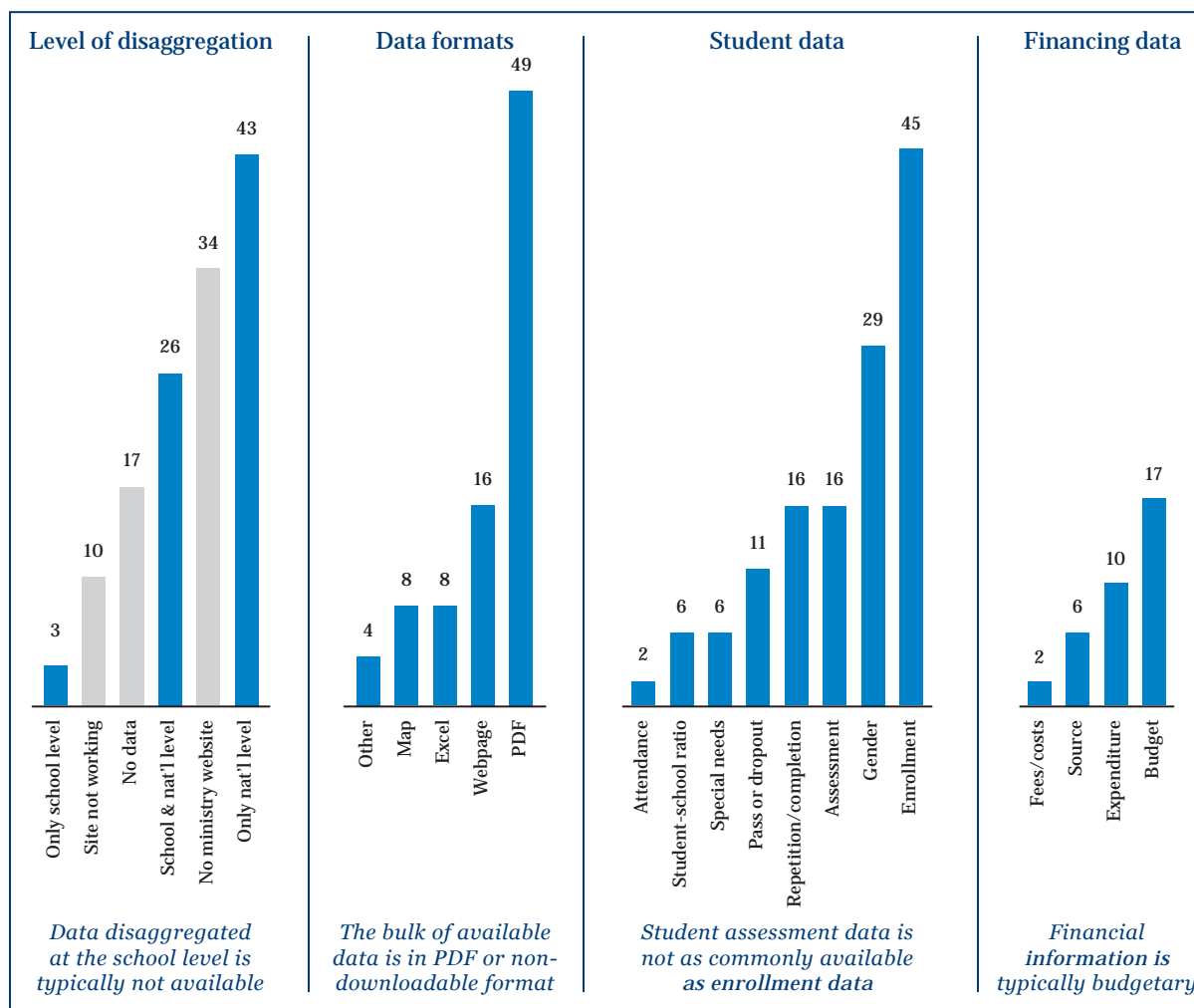g incentives for visible outputs such as portals or policies, but is not necessary for the kind of deep reforms and engagement required to release valuable data" (Carolan, 2016).

To demonstrate these limitations, we undertook an exercise to assess the quality and availability of data on Ministry of Education websites (see Figure 5).[5] We found that, of 133 low- and middle-income countries assessed, nearly half (61) have no available data, either because no ministry website exists or because data were missing or prohibitively difficult to access. Of the remaining 72 countries, 43 have data only at the national level (non-disaggregated), leaving only 29 countries with sufficiently disaggregated school-level data. Moreover, of data that are available, the majority are in PDF or non-downloadable format. In addition, while student data are the most commonly available type of data available on ministry websites, only 16 countries provide information from student assessments.[6] So, too, information on financing is generally on budgets rather than expenditures, when it is available at all.

Similarly, the *trustworthiness* of government data is hindered both by limitations in institutional capacity as well as skewed incentive structures. In terms of institutional factors:

- Data are not easily comparable, as every agency has its own formats, standards, and data collection processes. From a user perspective, this makes it difficult to know which data are valid (Ubaldi, 2013). This becomes particularly complicated for education systems, as a large percentage of education and learning data is collected by nonprofit organizations and private companies.

- Data in government repositories are often incomplete, untimely, or inaccurate due to capacity, financial, and time constraints (Ringold et al., 2012; Ubaldi, 2013).

Figure 5. Data available on Ministry of Education websites, by country

Level of disaggregation

- Only school level: 3
- Site not working: 10
- No data: 17
- School & nat'l level: 26
- No ministry website: 34
- Only nat'l level: 43

Data disaggregated at the school level is typically not available

Data formats

- Other: 4
- Map: 8
- Excel: 8
- Webpage: 16
- PDF: 49

The bulk of available data is in PDF or non-downloadable format

Student data

- Attendance: 2
- Student-school ratio: 6
- Special needs: 6
- Pass or dropout: 11
- Repetition/completion: 16
- Assessment: 16
- Gender: 29
- Enrollment: 45

Student assessment data is not as commonly available as enrollment data

Financing data

- Fees/costs: 2
- Source: 6
- Expenditure: 10
- Budget: 17

Financial information is typically budgetary

Note: Data collected from Ministry of Education websites in 133 low- and middle- income countries

- Methodologies employed in data collection and analysis are often not transparent and may not be based on rigorous or verified processes (Sabiti, 2014).

- Evidence from Kenya and Uganda illustrate that some subnational governments have particularly small (or nonexistent) budget lines for data collection and processing, leading to districts being

understaffed. Surveys reveal that certain districts even falsely claim to have hired information officers, despite the positions remaining unfilled (Sabiti, 2014).

However, data unreliability is not only due to limited capacity. Recent research by the Center for Global Development found that national statistics in sub-Saharan African countries are systematically inflated due to skewed incentives, such as overstating development

progress to satisfy international donors (Sandefur & Glassman, 2015). As such, the misrepresentation of data does not happen by accident or as a result of lack of analytical capacity, but rather due to systematic biases in administrative data systems. Even evidence from Kenya, one of the first countries on the continent to have a comparatively well-functioning open data platform, revealed stark differences between enrollment rates as stated by the Ministry of Education (99 percent) and the Demographic and Health Surveys (87 percent) (Sandefur & Glassman, 2015). Of course, donors and other stakeholders can play a strong role in ensuring that incentives to misrepresent are mitigated and set up mechanisms for validating incoming data, such as in Pakistan, where independent monitoring units used various verification processes when collecting data on key education indicators (see Box 7).

Opening up data to the public has the potential to amplify these adverse effects found with skewed incentive systems. For instance, in addition to misrepresentation or overstating of data ("garbage in, garbage out"), schools may be incentivized to exclude more marginalized students in an effort to improve test scores, or focus efforts on teaching to the test rather than structural reforms to improve learning environments and pedagogy. This was especially the case with the No Child Left Behind (NCLB) Act adopted in 2002 in the United States, which imposed sanctions for failure to meet established targets for student proficiency in math and reading. NCLB policies became widely unpopular as accountability became synonymous with "high-stakes testing," leading to resistance from schools and a number of parents opting their children out of taking tests. The U.S. Congress has since replaced the NCLB with the Every Student Succeeds Act, which gives states far

Box 7. Case study snapshot: Independent monitoring in Pakistan

Starting in 2014, the Independent Monitoring Unit hired 550 data collection and monitoring assistants (DCMAs) to collect data on key education indicators in every district in Khyber Pakhtunkhwa.

Information from each school is fed to a smartphone application and is updated to the database in real time. Various mechanisms have been put in place to ensure that the data collected are reliable and accurate:

- The DCMAs collect data based on a randomized cluster of schools assigned through a roster to ensure objectivity.

- The collection of data in real time using smartphones limits the potential for data tampering by DCMAs.

- The system configures geo-location of the DCMAs' phones so any misreporting will be detected immediately.

- Data cannot be updated by the DCMAs without the e-signatures of a head teacher.

- The district's management office performs unannounced spot checks on schools to ensure credibility.

more discretion in designing their own accountability policies.

Inequalities in societal structures

Digital divide: Despite ample excitement about the role of technology in disrupting stagnant accountability relationships and bringing citizens to the fore in decisionmaking processes, it is clear that everybody does not benefit equally—or derive what the latest World Development Report terms "digital dividends." This is due to two reasons: 60 percent of the world's population remains offline, and emerging risks of digital technologies may outweigh the benefits, such as in cases where it amplifies the voice of elites at the expense of the technologically marginalized, resulting in policy capture (World Bank, 2016b). Not surprisingly, it is the better educated, more connected, and economically advantaged populations that have benefited the most from the growth in ICTs.

As a logical next step, these digital divides produce parallel *data* divides that affect who can access and make use of data. In systems with high levels of inequality and without investment in intermediary or local level support for effective data use, transparency initiatives are more likely to widen, rather than narrow, social inequalities. As Gurstein (2011) highlights, the primary impact of open data may be to further empower and enrich those who are already empowered.

Even when interventions succeed in reaching the most marginalized, they generate additional concerns. Poor communities have the least amount of time and resources to, for example, attend school-based management meetings, monitor activities of teachers, give feedback through redress mechanisms, or track school budget allocations—a form of "time poverty" as illustrated in widely cited research by Mullainathan and Shafir (2013). In addition, such marginalized populations often face the highest social cost to action, such as facing repercussions from those in positions of power when exposing corrupt practices.

Voices are not homogeneous: Social accountability initiatives are premised on the assumption that citizens are likely to be more aware of local matters and shortcomings, and thus better placed to recommend or retarget reforms. However, there is the often-overlooked risk that people may "misunderstand" service delivery and "act in a way that does not improve its quality or may even undermine it" (Ringold et al., 2012). For instance, a recent review of the Twaweza initiative in Tanzania found that parents revered teachers as utterly dedicated and are hesitant to support the use of sanctions or strengthened accountability mechanisms against them, even when faced with evidence of an opposite reality, such as teachers with high absenteeism, low motivation, and a low skill base (Lipovsek and Mkumbo, 2016).

Moreover, evidence from India suggests that parents were more interested in immediate benefits for their own children rather than broader issues of learning or education quality. In facilitated meetings, parents were most animated about students' scholarships and a midday meal program (Khemani, 2007). Such cases show that reliance on parental concerns alone can hinder the potential for collective action that is required to have an impact on larger education systems. In fact, survey evidence suggests that policy-mandated school committees are largely inactive in practice due to the high cost of organized group action for citizens. In contrast, transparency is more likely to impel individual engagement such as switching schools or tutoring (World Bank, 2016a).

Additionally, "voice" is often understood as representing a unified concept—used as simple shorthand for "voices of the poor." In reality, however, "the voices

of the poor (as well as those of other groups) are far from homogeneous—and these many voices may not necessarily be complementary and may actually compete with one another" (Menocal & Sharma, 2008) (see Box 8). This harkens back to the digital and data divide, where certain groups (often male, well-off, and well-educated) are better able to engage and have their voices heard at the expense of the more marginalized. Similarly, in much of the literature, citizens, front-line providers, and governments are spoken of as homogenous entities with similar development goals. However, actions promoted by groups of citizens can be at odds with national priorities, which are set according to both practical and political motivations.

Tension among stakeholders

Many information-based reforms are premised on the notion that localized efforts at the school level have the potential to generate positive outcomes even in cases where national efforts disappoint. These initiatives often do not take into account, however, the location of decisionmaking and availability of resources. The result is that initiatives are misaligned with existing accountability and management structures, which limits effectiveness, sustainability, and scalability.

Teachers: One of the strongest examples of this misalliance is that due to the political strength of teacher unions, governments may be hesitant to implement sanction-based reforms directly targeting teachers even if teacher quality may be identified at the local level as a primary weakness in the system. As such, local information for accountability initiatives may have little impact in cases where decisions about the hiring and retention of teachers and teacher salary are made higher up the administrative chain and not at the school level, or where local school committees are not equipped or empowered to put "teeth" into renewal decisions or to sanction poor performance or frequent absences (Bruns et al., 2011).

For instance, research from Kenya found that students randomly assigned to contract teachers performed better on tests, yet regular teachers put forth less effort despite smaller pupil-teacher ratios. This was presumably because regular teachers did not face the same possibility that contracts would not be renewed as contract teachers. However, in cases where parent committees were trained and empowered, regular teachers were less likely to decrease their efforts. In a separate experiment, a well-functioning parent council also reduced the level of capture by regular teachers attempting to hire their relatives (Duflo, Dupas, & Kremer, 2012).

Local governments: At another level, the potential impact of information for accountability initiatives on financing decisions depends on schools' or district officials' level of authority in how budgets are spent versus the authority of the central government. Autonomy in

the planning and management of school budgets allows school administrators the ability to identify and shift spending to areas of need (for example, infrastructure, performance bonuses) and may even allow parental input into budget allocation decisions.

Key questions in assessing budgetary autonomy include:

- At what level is budgetary authority?

- Can schools manage non-salary expenditure?

- Who has legal authority over staff (teaching and nonteaching) salary? Is there a pay scale with guidelines?

- Can schools raise additional funds and from what sources?

- Can the school make a proposal for the budget, and will higher levels of authority consider it, use it as a reference, or as the main guide to transfer resources? (Demas & Arcia, 2015).

4. KEY TAKEAWAYS

Drawing from the recent influx of empirical research investigating impact of information initiatives as well as in-depth case study analyses that illustrate the processes and mechanisms behind reform efforts, it is possible to identify key factors that influence the outcomes of transparency initiatives during implementation phases.

Information is not enough

This review echoes an overwhelming consensus in existing literature that information alone is rarely sufficient to activate collective action or impel response from service providers. Instead, information must be made actionable through certain processes, such as interventions that change the capabilities or incentives of front-line providers or empower parents with direct pathways or tools to use information.

On the citizen engagement side, this can be achieved by bundling information campaigns with complementary interventions such as facilitated meetings to make it easier to understand the information being provided (so-called socialization), or projects that establish feedback or complaint mechanisms between information generators and those whose performance the information is trying to influence (for example, teachers, schools, bureaucrats). In most contexts, lack of information is not the only bottleneck in improving service delivery, but the limited mobilization of citizens and front-line providers to act on what they see and know.

On the supply side, governments and service providers must have the ability to change behavior or make decisions to leverage the value of newly available information. This comes with having the capacity to respond as well as the autonomy and authority to act. As explored previously in this report, it is also the case that infor-

mation must be aligned with incentives for political actors or local providers to be *willing* to respond.

As stated in the landmark 2004 World Development Report: "Effective solutions are likely to be mixtures of voice, choice, direct participation, and organizational command and control, with functional responsibilities distributed among central, regional, local, and school administrations. The pieces have to fit together as a system" (World Bank, 2003).

What information is captured and how it is shared matters

Similarly, not all information is considered equal. Equally important to the success of information for accountability interventions is *what* and *how* information is conveyed.

As Fox (2015) notes, information needs to be user-centered to empower action, meaning that information must be targeted in a way that users perceive it as both useful and actionable. This highlights the importance of selecting not only the appropriate indicators—*whether on inputs or outputs*—but also the most appropriate format—*whether the information reflects official standards or is placed in relation to similar contexts* (for example, schools in close proximity or with similar socio-economic environments). The correct choice depends on the targeted audience and assumed channels of change. For instance, evidence suggests that parents respond more actively to data on inputs, such as teacher attendance or school infrastructure, which are more easily actionable, rather than data on test scores or other measures of learning quality, which may be more relevant for teachers or school administrators.

This is also seen in the case of Moldova (see Box 9), where proceedings from public hearings suggest that parents are more concerned with infrastructural

> **Box 9. Case study snapshot: Scoala Mea public hearings**
>
> Key to the Scoala Mea project is the process of making the information actionable through public hearings that bring together students, teachers, parents, and local and regional authorities. At the hearings, school principals are obliged to present the progress of the school in implementing education reforms, budget expenditures in recent years, and draft budgets for the upcoming year. The hearings provide parents and community members with a platform to make collective decisions on school issues and development priorities.
>
> There has been anecdotal evidence of parents reacting to information provided during public hearings and influencing budgetary appropriations, as well as a general trend of improvements to school infrastructure and learning environments. However, there have been instances of resistance to public hearings from school administrators, which can lead to challenges since administrators enjoy autonomy in regard to making expenditure decisions following recent decentralization reforms.
>
> These public hearings are especially relevant when it's understood that 29 percent of students and 20 percent of parents did not have an opinion when surveyed on how they would evaluate the expenditures of resources by the school but demonstrated a keenness to attend public hearings to understand more about budgetary processes.

changes than learning. This is likely due to a realistic assessment of their areas of leverage; parents are able to make decisions on a limited set of budgetary allocations but are likely not able to influence pedagogical reforms or teacher effort (even if they knew which steps to recommend).

So, too, deciding who collects the data must be carefully considered to minimize incentives for falsification. For instance, under the U.S. NCLB policies, teacher-developed "student learning objectives" were graded by teachers themselves, making them susceptible to inflation (Gill, Lerner, & Meosky, 2016). The British system takes steps to mitigate these risks by using independent, expert educators to observe instruction; interview teachers, students, and parents; and examine school performance data (Gill, Lerner, & Meosky, 2016).

Beyond choosing which indicators to capture and publish, a user-centered approach emphasizes the importance of disseminating it in such a way that that it is also easy to understand, as localized (disaggregated) as possible, and contextual (meaning that it can be linked or understood alongside a wide variety of data) (Bruns et al., 2011; DI, 2014; Canares, 2014). For example, data on school inputs or student outcomes are less likely to impel action without associated information on school-level budgets or expenditures.

The use of infomediaries is vital

In cases where the ability of citizens to understand, process, and act on published information is hindered by capacity constraints, intermediaries, such as the media, CSOs, researchers, and ICT organizations may strengthen capabilities by translating and communicating information so it is more actionable for end users.

These infomediaries play an especially important role when the use of technology to disseminate information, such as on internet platforms, creates vast digital and data divides.

For instance, an examination of 17 digital engagement initiatives in the latest World Development Report found that offline mobilization of CSOs was a particularly important indicator of success related to the online release of government data, as uptake on digital channels was low. In fact, the report found that of eight cases of digital engagement initiatives that did not involve a partnership between CSOs and government, most failed (World Bank, 2016b). These intermediary roles ensure that data are better tailored to the audience and intended use and that end users are actually interested in the information that is being released. However, the role of infomediary should not be understood as merely a technical role. A survey by the Jesuit Hakimani Centre in Kenya (2013) found that community centers, churches, mosques, and community radio were all important venues that citizens use to access information.

Beyond making data actionable by end users, infomediaries also play a vital role in articulating demand for data, in working with governments to supply open data and engage in the reform process, and even in collecting and disseminating data on their own. For instance, a recent review of the impact of citizen-led assessments, shows that, in many cases, information generates responsive action from policymakers when a CSO or other external entity is able to provide suggestions about what those actions might look like (Results for Development, 2015) (see Box 10). Tim Davies, a prominent writer and researcher in the open data field, terms these expanded roles of infomediaries as "keystone pieces" in open data ecosystems, as they interact with both users and suppliers (Davies, 2014).

Dissemination tools are as important as the source data

New technologies for transparency and accountability initiatives are wide-ranging and generate a lot of excitement—examples include social media platforms, text messages, cloud services, tablets, mobile apps, and web interfaces. However, this should not imply that

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Box 10. Case study snapshot: Building responsiveness into Check My School

While Check My School has been able to overcome many of the technological limitations that were associated with first iterations of the project, the secretariat has still not been able address a principal issue: If citizens want to engage with data, often there are no clear avenues for complaints or discussions. As a result, as CMS enters its fifth active year, the organization is making concerted efforts to identify and map officials and agencies and their associated responsibilities related to school-level service delivery, including those that fall outside of the Department of Education, such as utility companies and other local government agencies. Emphasis is placed on answering the following questions:

- How do communities tap into existing resources?

- How long and how difficult is the process for requests?

- Who has the power to effect certain decisions on resource allocations?

older means of communication are no longer useful. Just as information must be targeted effectively to ensure uptake, so, too, must the vehicle of dissemination be carefully considered.

Importantly, this suggests that a key first step in the design of information for accountability initiatives is the testing of their appropriateness for its intended users. A recent article on transparency processes in South Africa and Kenya recognized that tool selection is an important decision that can influence the uptake and success of interventions. The research revealed that less than a quarter of the implementers surveyed described the tool they had chosen as a success, most failing due to low uptake from users. As such, there is evidence that conducting trials and user research are a necessary first step—providing needed evidence on a tool's ease of use, effectiveness, and appropriateness. Perhaps not surprisingly, in both countries, organizations that conducted user research were most likely to see uptake by end users (Wilson & de Lanerolle, 2016).

Pathways to change may be nonlinear

Often, ICTs are assumed to be disruptive tools that radically alter existing accountability relationships and processes. However, recent research suggests that so-called home runs—interventions that unleash a dramatic increase in accountability—are rare (Fung, Gilman, & Shkabatur, 2010). More common are interventions that complement existing mechanisms for accountability, or what is termed the "data evolution" rather than "data revolution" (Davies, 2014).

This follows along with evidence that successful open data and social accountability initiatives build on existing formal or informal accountability practices. These insights stress the importance of working "with the grain" of embedded accountability relationships and

with a deep understanding of complex political dimensions (Halloran, 2015; O'Meally, 2013).

The complexity of such interventions also necessitates an iterative approach to implementation design, which Davies suggests can spur a ripple effect in low- and middle-income countries, rather than a simple linear path from transparency to accountability. With a ripple effect, the outcomes of data may be indirect: starting from an open data intervention and spreading out into new areas. The process of thinking about open data may encourage governments to change their systems for collecting data, which may have effects on how they use data internally, with consequent impact on policy and planning. Open data initiatives may create new spaces for government and civil society to work together, building trust or enabling more targeted NGO actions. It may be hard to attribute these impacts entirely to the use of a specific open data set; rather, they emerge around the introduction of open data ideas and practices in general (Davies, 2014).

However, in some cases starting from a point of transparency first may undermine accountability efforts. For instance, evidence from a social accountability initiative in Myanmar demonstrated success in a situation where CSOs wrote two different reports—one public and one private—after public hearings that were arranged to monitor local budgets. The outward-facing report used softer language without mention of corruption, while the private report raised specific allegations against local political bosses. The officials welcomed this discretion and took steps to reduce corruption, whereas it was likely that a naming and shaming exercise would have had more adverse results, suggesting that valuing transparency above all would have undermined the objectives of the campaign (Green, 2016).

Going with the grain of existing accountability structures would also limit the risk of governments focus-

ing on satisfying the *image* of being committed to open data and transparency initiatives, such as through the release of low-risk data sets or the establishment of data portals not linked to the interests of potential data users, rather than truly engaging with the principles behind transparency and accountability efforts. It also emphasizes a cyclical and mutually reinforcing process where both supply and demand constraints can be mitigated simultaneously. The alternative, of prioritizing one over the other, would be more likely to generate a "proof of concept" (even on a very small scale) and motivate further efforts rather than risk fatigue or abandonment of transparency reforms as a whole.

Location, location, location

While transparency initiatives have been flourishing globally, impact often falls short of expectations. Part of this failure can be explained by a misalignment between the locations of transparency and accountability efforts and points of decisionmaking and responsibility. For instance, transparency mechanisms targeted strictly at the school level, such as transparency boards where school budgets are posted openly, do not capture valuable information on how allocation decisions are made by local government or national offices. This has become especially salient as many governments have instituted capitation grants to replace previously collected school fees following the introduction of free universal basic education. A recent survey conducted in Tanzania revealed that nearly 60 percent of princi-

pals did not know how much funding they were eligible to receive from the government (Lipovsek & Mkumbo, 2016). So, too, introducing mechanisms to monitor teacher attendance may not address associated "upstream" issues with decisions related to hiring and firing (Fox & Aceron, 2016).

In recognition of the importance of location, Fox and Aceron (2016) suggest a conceptual reboot that takes "scale into account"—meaning "articulating how different *levels* of decision-making interact with each other." In this sense, localized efforts must be integrated vertically, so that there is two-way communication between local actors and information and central resources and authority, rather than a strictly horizontal approach that prioritizes replication over integration. Fox and Aceron found that even "partially integrated" reform policies, with "public oversight of even *some* of the links in a chain of public sector decisions (or nondecisions)," can have significant impact.

As such, transparency and accountability reforms must take into consideration the location(s) of decisionmaking and availability of resources, particularly in relation to local bureaucratic institutions, to reinforce efforts at the point of delivery. Moreover, information-based reforms targeted directly to parents must ensure that functioning response and feedback systems are in place, or that sufficient choice among schooling options exists.

CONCLUSION

A select number of cases reveal the potential of information for accountability initiatives to be a strong tool for improving service delivery at the school level. In some circumstances, the process of opening information to the public has reduced corruption; improved managerial, parental, and teacher effort; and led to more efficient targeting of reforms and resources at the school level. However, evidence shows that this potential is limited, and even under the best of circumstances information has not provoked citizen action as expected. It has been difficult to replicate the small number of successes in other contexts, and it is clear that without a better understanding of the underlying mechanisms of change, as well as enabling conditions for citizen action and supply-side response, scaling such successes will remain a challenge.

Nor is it clear that engaging citizens in holding service providers to account will lead to positive and systematic impacts on learning. In fact, opening data to the public has the potential to lead to adverse effects such as empowering the already empowered, teaching to the test, misrepresenting data, and burdening the marginalized who can ill afford to divert time away from generating their livelihood. Also, even when the benefits from information for accountability initiatives are significant, there are little data on the costs associated with them to assess the cost-effectiveness of different strategies for improving education outcomes.

A more positive, systemwide impact on education and learning (rather than localized effects) will likely require that such demand-side interventions are complemented and reinforced by internal accountability mechanisms within the bureaucracy that rely on evidence-based policymaking and strong feedback loops. There is clearly room to build on lessons learned from social accountability interventions to improve their impact—by linking information to specific paths of action; thoughtfully targeting the appropriate type of data to the relevant actor and location of responsibility; empowering infomediaries; and working with the grain of existing accountability mechanisms. But the delivery of quality education for all depends just as much on the capacity and willingness of governments to assess reform options and trade-offs as they respond to increased citizen engagement. They can also, independently of community engagement, leverage timely and robust data and information systems to improve service delivery within the larger education system.

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NOTES

1. Various names have been given to fields of research in this vein, including transparency and accountability (T/A), transparency, accountability, and participation (TAP), and voice, empowerment, and accountability (VEA), among others.

2. Treatment effects on student learning were seen in private schools but not public schools.

3. There is some anecdotal evidence that the site has been used to combat corruption.

4. Test scores were slightly higher in treated schools, but these results were not statistically significant.

5. It is important to note that data could be potentially contained on websites other than official ministry websites, but this was beyond the scope of the exercise.

6. It is not clear what proportion of countries do not collect this information versus countries that choose not to share on official ministry websites.